Translating Science into Action

Chicago Wilderness

ClimateACTION

Climate-smart management for urban natural areas


Lake Michigan
Muskegon
Norton Shores
Mequon
Menomonee Falls
Glendale
Brookfield
Milwaukee
Waukesha
Cudahy
New Berlin
Oak Creek
Franklin
Caledonia
Racine
Kenosha
Sun Prairie
Stoughton
Janesville
Beloit
Machesney Park
Loves Park
Rockford
Gurnee
Waukegan
Mundelein
Highland Park
Arlington Heights
Elgin
Schaumburg
Dekalb
Chana
Wheaton
Chicago
Aurora
Naperville
Bolingbrook
Oak Lawn
Gary
Hammond
Joliet
Merrillville
Portage
Michigan City
Rolling Prairie
La Porte
Niles
Granger
Elkhart
South Bend
Goshen
Covert
Holland
Hamilton
Walker
Wyoming
LaSalle
Ottawa
Peru
Streator
Bourbonnais
Kankakee
Grovertown
Plymouth
Pontiac
Watseka
Logansport
Peru
Wabash

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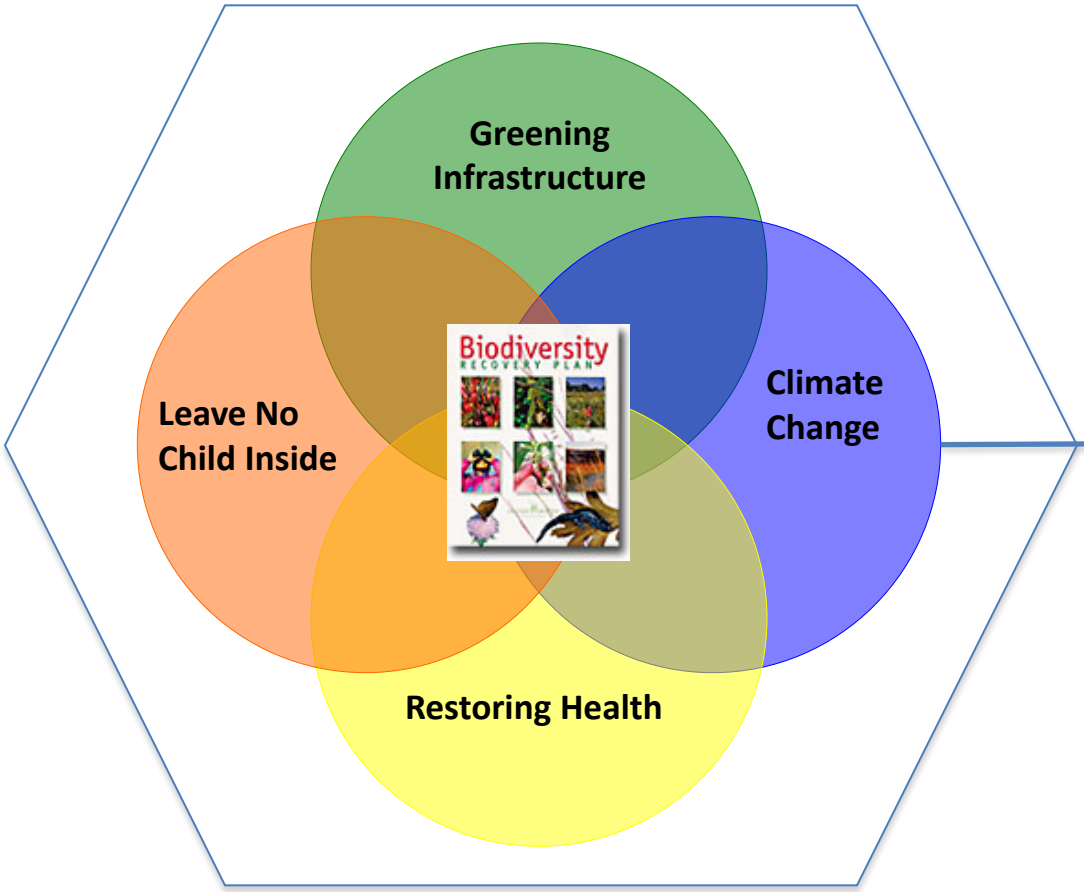
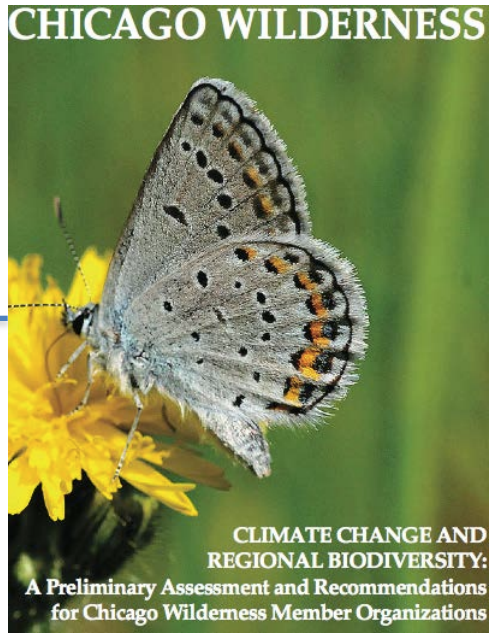
Strategic Initiatives





Regional Biodiversity Recovery

Chicago Wilderness Climate Action Plan for Nature

Climate Action Plans

City of Chicago Climate Action Plan

- Human population
- Buildings
- Transportation infrastructure
- Landscaping

Chicago Wilderness Climate Action Plan for Nature

- Rivers and lakes
- Restored natural areas
- Remnant natural areas
- Native species

- Urban forests
- Water infrastructure
- Vacant land

Climate Action Plans

Over 370,000 acres of protected open space

Chicago Wilderness Climate Action Plan for Nature

- **Mitigation:** ecosystem-based approaches to reducing greenhouse gases in the atmosphere
- **Adaptation:** making natural areas resilient in the face of inevitable climate change
- **Engagement:** creating a "climate for change" through education/outreach

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BIODIVERSITY RECOVERY PLAN

Climate Change Update

Bridging the Gap(s)

Global changes ⇨ **Local changes** ⇨ **Impacts to regional biodiversity**

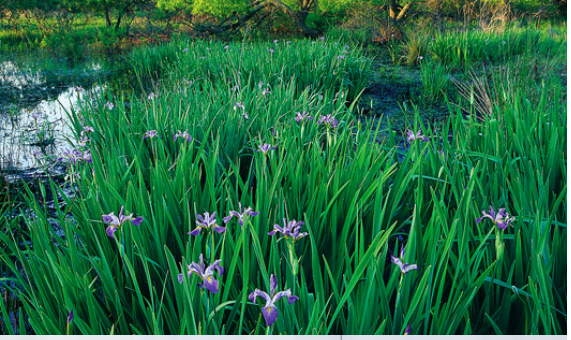
⇨ **Engagement of resource managers** ⇨ **Adaptation strategies**

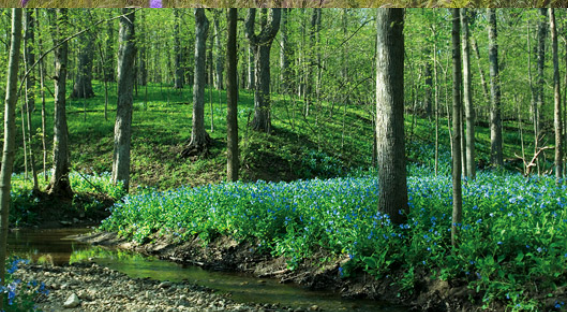




How is climate change affecting *our* region?



What can we expect?

- Changes in precipitation patterns
  (wetter winters and springs; drier summers)

- Increases in extreme storm events
  (e.g., rain, snow, wind)

- Increases in the number of extreme heat days in summ
  (In a high-emissions scenario, 26 days > 90° by m
  century)

- Winters becoming “less cold”
  (average nighttime lows increasing; less ice cover =
  increased beach erosion)

Source: Hayhoe et al. Journal of Great Lakes Research,

Impacts to biodiversity

Direct effects

- Temperature
- Precipitation
- Increased intensity of weather events

Indirect effects

- Range shifts
- Predators/disease/invasives
- Timing of important life cycle events

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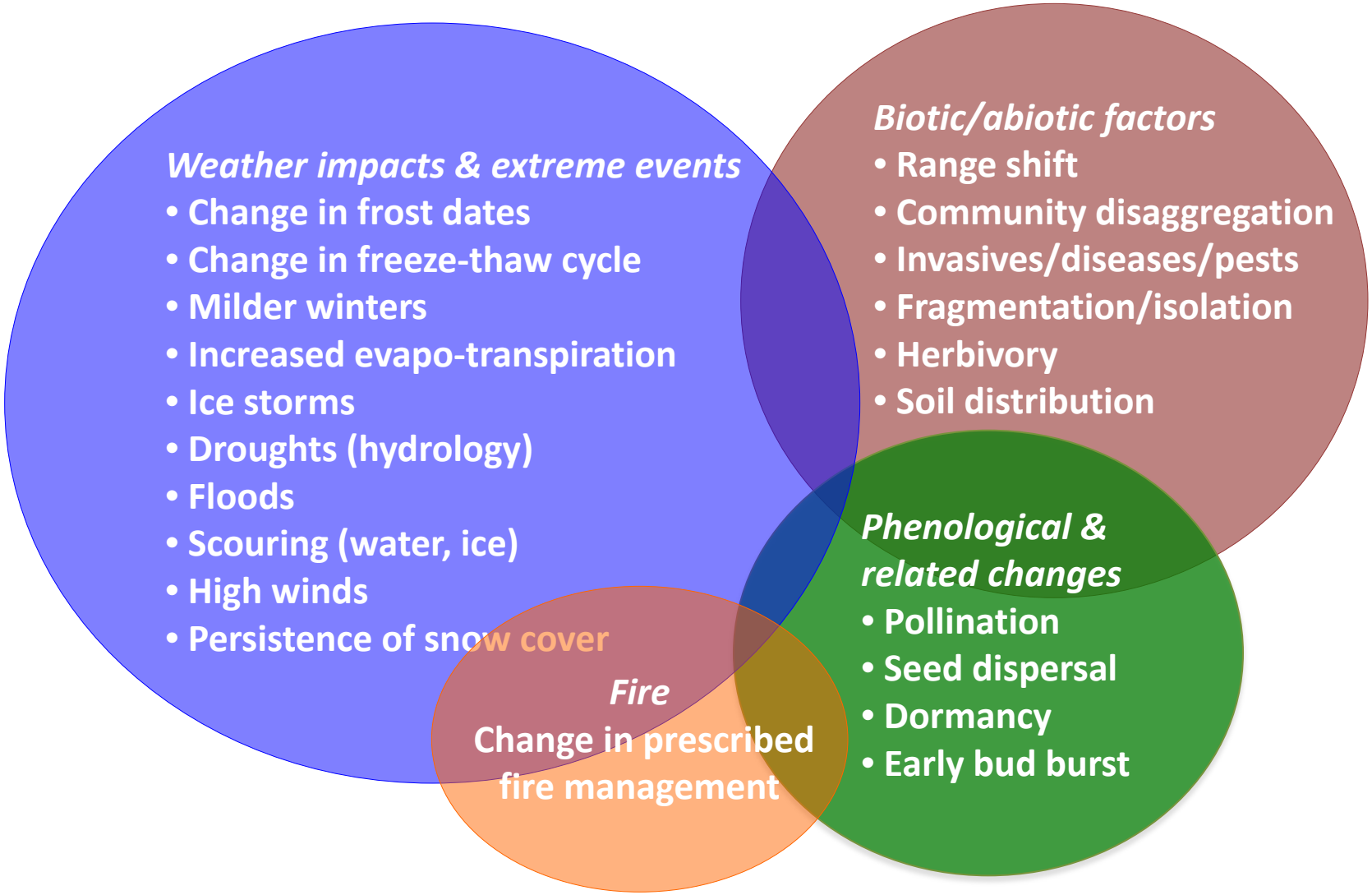
Impacts to plants/natural communities



Threats to ecosystem health

- Invasive Species
- Altered natural processes
- Loss of native species
- Altered species composition or structure
- Pollution

Climate Change = threat amplifier

Climate-smart management

How to manage the landscape in a changing climate?

- *promote resistance* – *system's ability to remain unchanged in the face of external forces*
- *promote resilience* – *ability of a system to recover from disturbances*
- *transition* – *help move a system from one state to another*





Identifying climate-sensitive decisions

What planning and management actions could reduce a site's vulnerability to specific climate-related impacts?

- Drought and heat stress
- Extreme storms (e.g., precipitation flashiness and flooding)
- Loss of key functional system or species


Ask
the expert


Ask
the expert

(this is how we did it)

http://climate.chicagowilderness.org

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Page | Read | View source | View history

Main Page

Chicago Wilderness

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BIODIVERSITY RECOVERY PLAN

Climate Change Update

Navigation

- Main page
- Introduction
- Terrestrial Communities
- Aquatic Communities
- Green Infrastructure
- Wildlife
- Plants
- Climate Change Background
- General Adaptation Strategies
- References
- Contributors

Toolbox

- What links here
- Related changes
- Special pages
- Printable version
- Permanent link

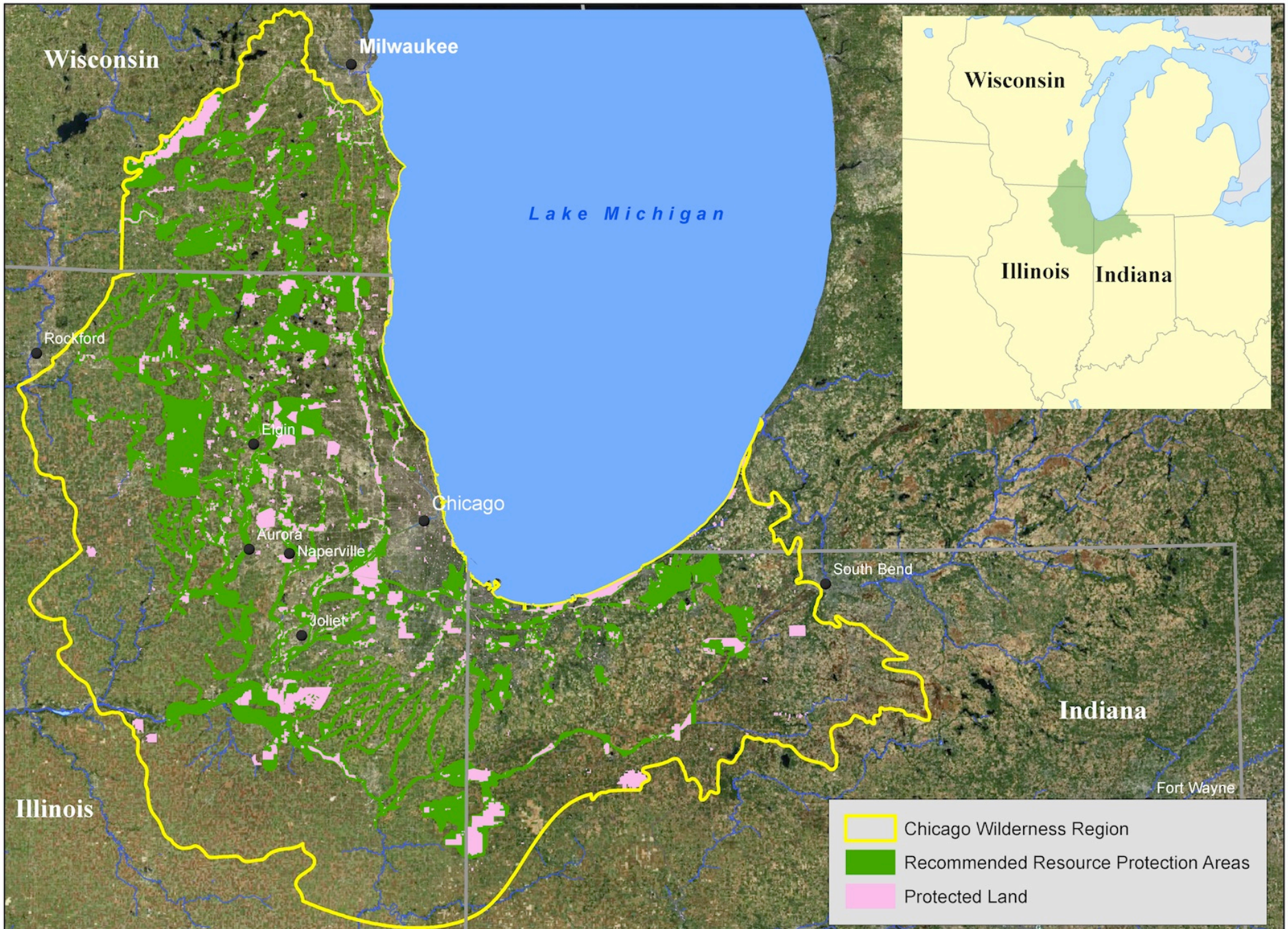
"It is not the strongest of the species that survive, nor the most intelligent, but the ones most responsive to change!" - Charles Darwin

Changing Landscapes in the Chicago Wilderness Region: A Climate Change Update to the Biodiversity Recovery Plan

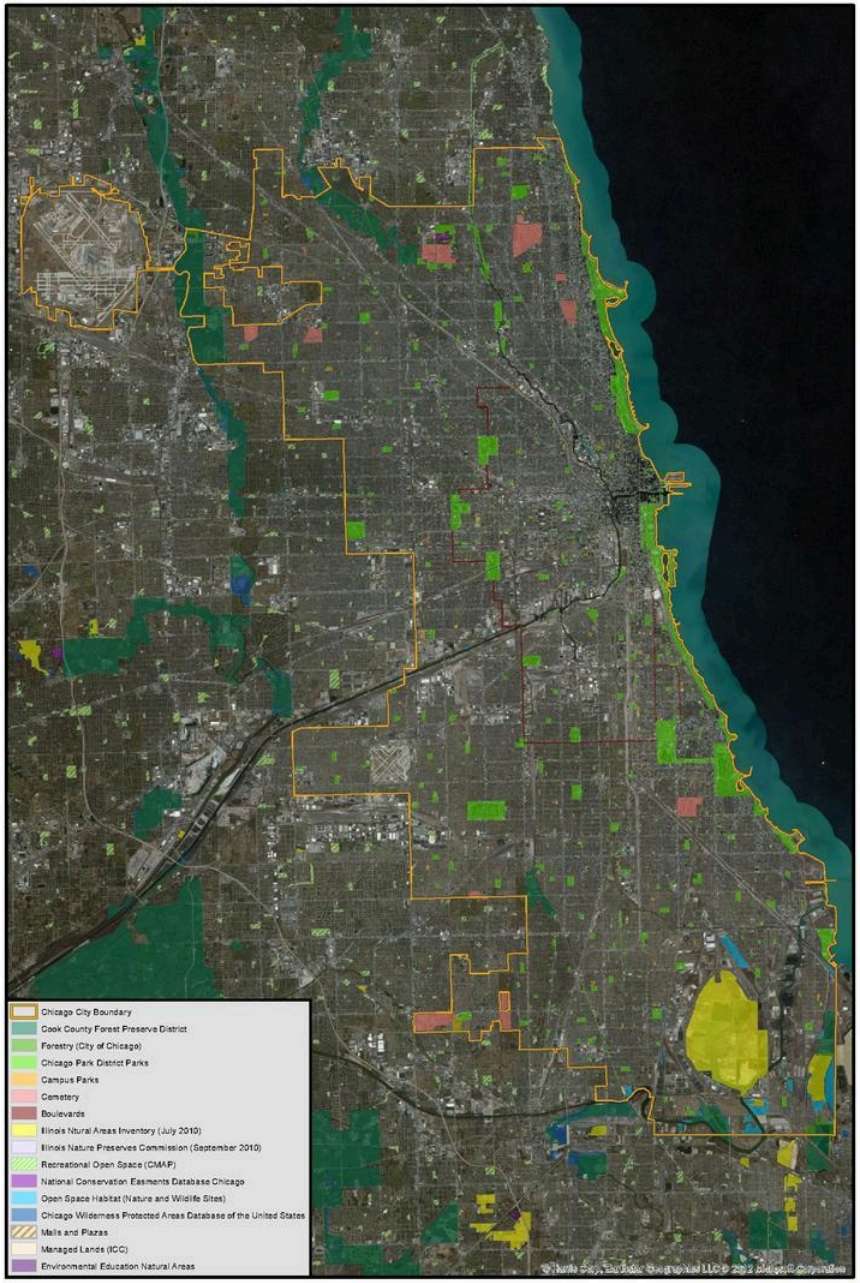
Recognizing the potential of climate change to jeopardize the conservation investment that has taken place in the Chicago Wilderness region, in 2007 the Chicago Wilderne
Council established Climate Change as one of four thematic initiatives, along with the Green Infrastructure Vision, Leave No Child Inside, and Restoring the Health of Local N
and carry out the work of this initiative, CW established the Climate Change Task Force (Task Force) to "study and make recommendations on adaptation strategies and mod
order to address the local impact of climate change." In 2008, the Task Force produced *Climate Change and Regional Biodiversity: A Preliminary Assessment and Recomme*

- ✧ 100 + regional managers, scientists and researchers contributed
- ✧ place-based adaptation strategies for biodiversity
- ✧ research questions needed to inform climate-smart management
- ✧ web-based tool

Chicago Wilderness Green Infrastructure Vision



Chicago Green Infrastructure



0 0.5 1 2 3 4 5 Miles

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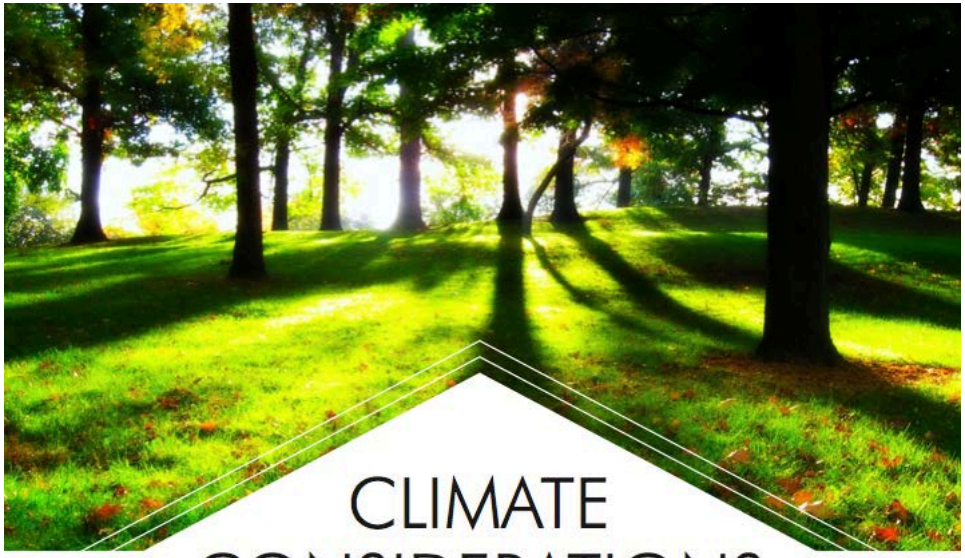
Sources: Various including City of Chicago former Department of the Environment, Cook County, Protected Areas Database (PAD-US), Chicago Metropolitan Agency for Planning (CMAP), Illinois Natural History Survey, Natural Conservation Easements Database)

The Field Museum



CLIMATE CONSIDERATIONS

for **MANAGEMENT** *of* **NATURAL AREAS** *and* **GREEN SPACES** *in the* **CITY** *of* **CHICAGO**

CITY OF CHICAGO – INCORPORATED 4th MARCH 1837

UNIVERSITY OF NOTRE DAME

The Nature Conservancy
Protecting nature. Preserving life.™

The Field Museum

From “Checklist” to *Guidebook*

I. Convened based on need expressed by resource managers
II. 27 people, 15 organizations, 9 City Departments (AKA “Climate Fellows”)
III. 3 Climate Clinics

From "Checklist" to *Guidebook*

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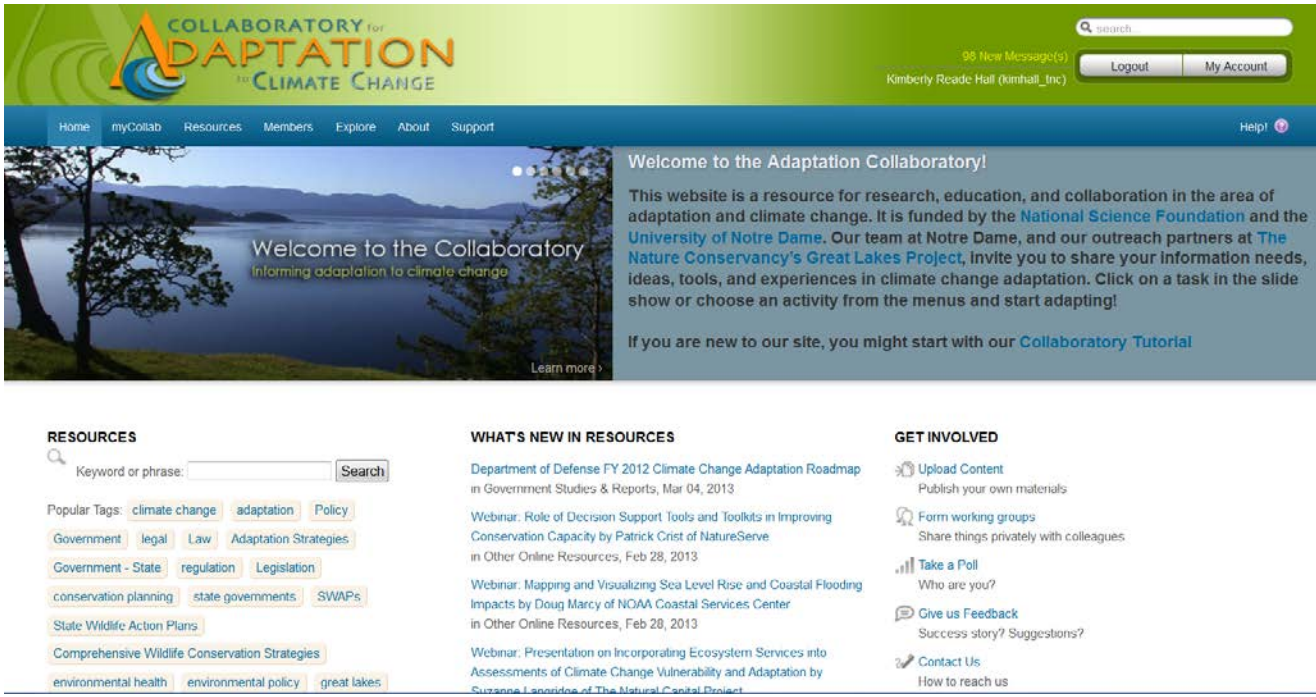

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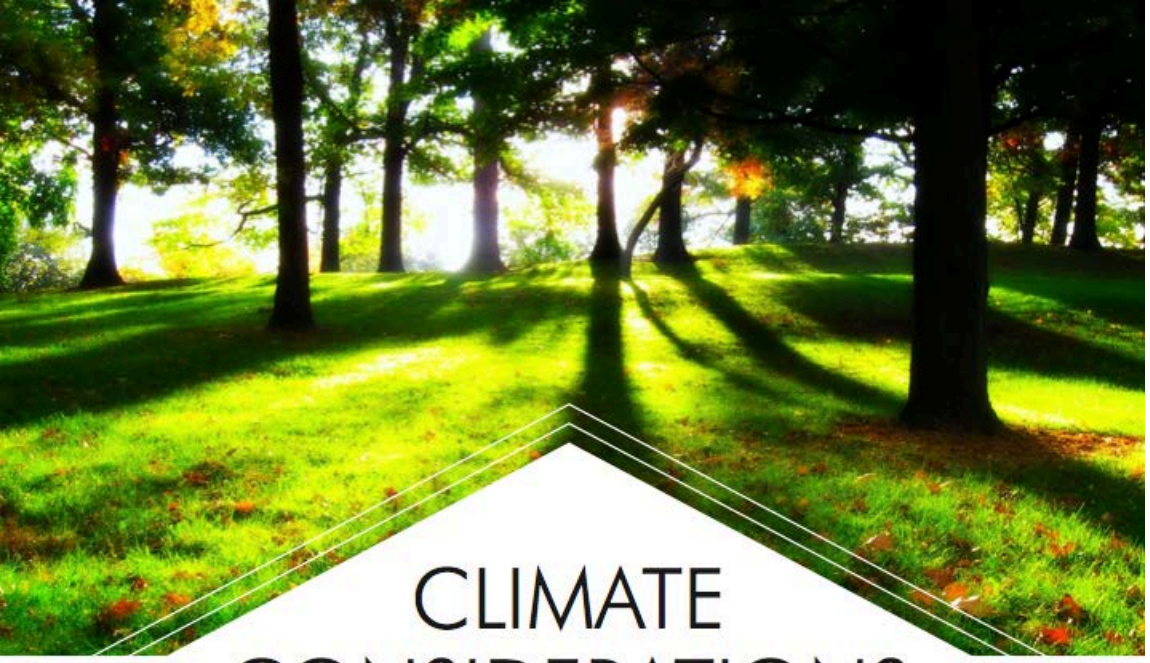

CLIMATE CONSIDERATIONS

for MANAGEMENT *of* NATURAL AREAS *and* GREEN SPACES *in the* CITY *of* CHICAGO

TABLE OF CONTENTS

Climate Considerations Guidebook

Opportunities:

I. Develop academic and applied partnership
II. Create a community of climate-smart practitioners

February, 2013

Chicago Wilderness

Climate Change Task Force Newsletter

Friend on Facebook
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Forward to a Friend

The intention of this newsletter is to keep CW members informed about current climate change related stories, research and local events. Please send submission ideas and comments to Abigail Derby Lewis, newsletter editor, at aderby@fieldmuseum.org.

Table of Contents

Highlighted Species

Franklin's ground squirrel (*Spermophilus franklinii*)

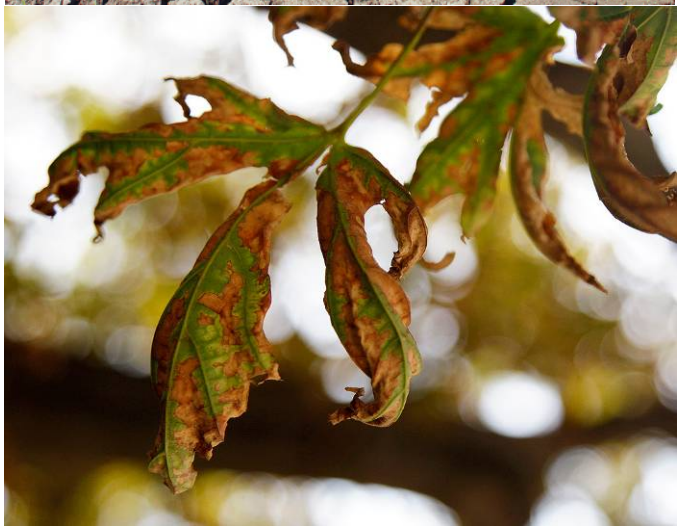
Estimates for "temperature maintaining distance" projected for small mammals in northern Indiana (Francl et al. 2010) suggest that to track changes in average January temperature that occurred during the mid 20th century, species would have needed to move north at between 0.4 and 2.1 km/year, with that estimate increasing in projections for this century. The U.S. National Climate Assessment Technical Input Report on Impacts to Biodiversity points out such rates are likely to be unattainable for many species, especially in highly modified landscapes, or in aquatic systems with limited connectivity. Modeling on Franklin's ground squirrel, a state-endangered species in Indiana and state threatened in Illinois, suggests this species might be challenged due to complications with habitat fragmentation and therefore unable to expand its range northward within continuous tracts of suitable habitat (Francl et al. 2010). Furthermore, Franklin's ground squirrel, a grassland mammal that inhabits areas with tall

Contact : aderby@fieldmuseum.org

Climate considerations

Drought & heat stress

- Focus on restoring natural hydrology or keeping water on-site (i.e. removing drain tiles, blocking ditches, installing water control structures).
- Where possible manage or create microhabitats that can provide relief for local fauna.
- Where appropriate, seed or plant drought tolerant species.



Climate considerations

Extreme storms (flashiness & flooding)

- Focus on restoring natural hydrology and storm water management.
- Stabilize river and stream banks and slopes, if feasible.
- Where appropriate, plant species capable of withstanding water level fluctuations.

Climate considerations

Other recommendations

- *Increase genetic diversity* of species by widening the seed source collection range, specifically to more southern populations and meta-populations
- *Promote regional tree diversity* through management in natural areas and planting in urban systems to increase resiliency of regional forests
- *Consider the objectives* of restoration efforts *and prioritize* winning battles
- Design and implement a *monitoring protocol* to evaluate climate change on local plants and animals